

Sexually Transmitted Diseases in Arizona: 2009 Annual Report



**Arizona Department of Health Services
Division of Public Health Services
Office of HIV, STD, and Viral Hepatitis Services
Sexually Transmitted Diseases Control Program**



Division of Public Health Services

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June 1, 2010

Dear Arizona Stakeholder:

The Arizona Department of Health Services (ADHS) Sexually Transmitted Disease (STD) Control Program is pleased to provide the 2009 Arizona STD Annual Report. The report highlights the impact of sexually transmitted diseases among the residents of Arizona. The subsequent information, as depicted in the narrative, graphs, and tables herein, highlights the increasing numbers of STDs affecting our state. All 2009 data are from the ADHS STD surveillance system as of June 29, 2010.

Sexually transmitted diseases can cause significant health problems among those who become infected. For instance, untreated chlamydia and gonorrhea can lead to pelvic inflammatory disease (PID). PID can become recurrent among young women and girls, often leading to expensive health complications. Other young women may suffer ectopic pregnancies and chronic pelvic pain. Worse still, sexually transmitted diseases can lead to infertility.

Unfortunately, young people, racial/ethnic minorities, and men who have sex with men, bear a disproportionate burden of STDs in Arizona. The ADHS STD Control Program is working to address these health disparities by collaborating with internal partners, as well as local/county/tribal health departments, community based organizations, the Indian Health Service, the Centers for Disease Control and Prevention, and countless Arizona medical providers to promote STD prevention and intervention statewide.

Sexual health is everyone's responsibility. Although genital herpes, hepatitis B, human papillomavirus, and trichomoniasis are sexually transmitted diseases that are not included in this report, these infections continue to impact a majority of the sexually active population. At some time during the lifetime of any sexually active individual, they may be at risk for these infections. It is important to be tested routinely in order to prevent transmission as well as the manifestations of untreated infection.

Through this report, we hope to disseminate useful and pertinent data to the Arizona public and community leaders. It is our belief that this information can promote dialogue about disease prevention, promote medical treatment and services, and improve the sexual health of all Arizonans. This is in keeping with our program mission:

Strengthening Sexually Transmitted Disease prevention, intervention, and control in Arizona through education, surveillance, collaboration, and program development.

Please do not hesitate to contact us with further questions regarding STD education, prevention, and screening opportunities.

Sincerely,

Roxanne Ereth, MPH
STD Control Program Manager

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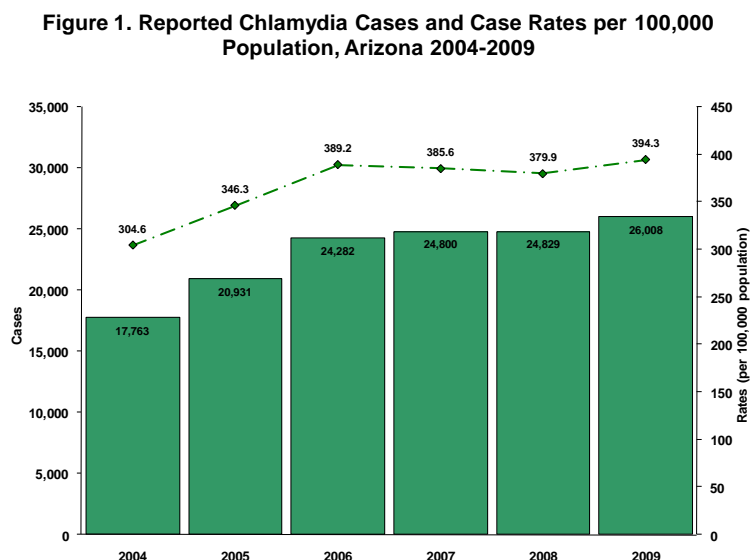
An Overview of Arizona Sexually Transmitted Diseases (STD) 2009: Morbidity, Incidence, and Trends.

The Arizona Department of Health Services (ADHS) STD Control Program receives morbidity reports from two sources: laboratories and medical providers. The redundancy is needed to enhance timeliness and completeness of reporting. Laboratory reports tend to be timelier and reflect morbidity better than disease reports submitted by medical providers. However, these reports usually lack critical treatment and contact information for follow-up purposes by local health departments and information for trend analysis by gender, race/ethnicity, sexual preference, and geographical location. Instead, the STD Control Program relies on Communicable Disease Report (CDR) forms submitted by medical providers for this information. The *Arizona Administrative Code R9-6-201* requires that physicians and healthcare administrators report cases and/or treatment of syphilis, gonorrhea, chlamydia, chancroid, lymphogranuloma venereum, and genital herpes to the appropriate local health department within five business days of diagnosis and treatment. *Arizona Administrative Code R9-6-202* requires submission of positive laboratory test findings on the above conditions, also within five days, to the state STD Program.

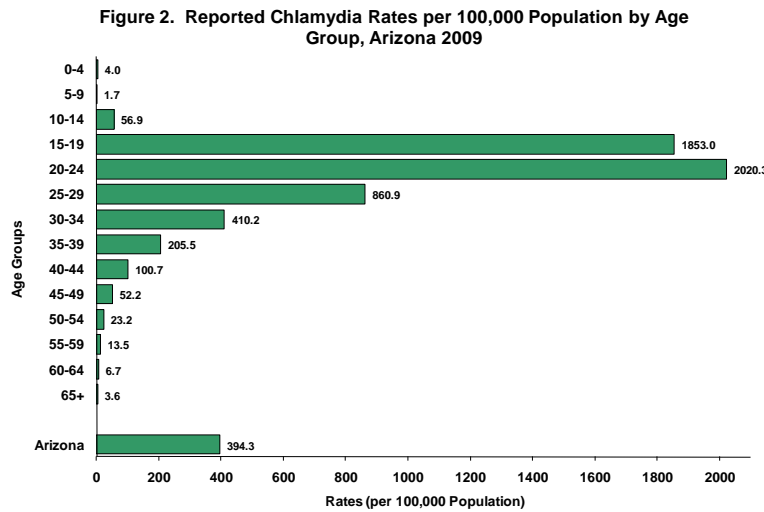
All data presented in this report are derived from the ADHS NATP STD database. The population denominators used were obtained from the Arizona Department of Health Services Vital Statistics Division (<http://www.azdhs.gov/plan/>).

Chlamydia

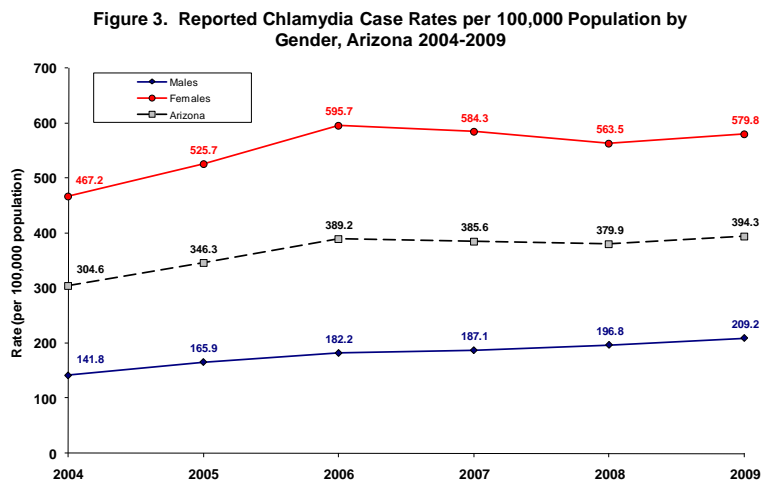
Reported chlamydia cases and case rates in Arizona increased significantly from 2004 to 2006. Specifically, the number of cases identified in Arizona increased from 15,558 cases reported in 2003 to 24,282 cases in 2006, a nearly 10,000 reported case increase during three years. Since 2006, however, the reported chlamydia cases each year have increased, but at a much slower rate (Figure 1). In 2009, there were 26,008 cases reported with an annual case rate of 394.3 cases per 100,000 population.



Although the cases and case rates seem to have leveled off over the last four years, a closer examination of chlamydia rates among young people ages 15-24 reveals extremely high values, nearly 5 times the rates for the state as a whole. In 2009 among 15-19 year olds, the chlamydia case rate remained very high at 1,853.0 cases per 100,000 population and was 2020.3 per 100,000 population for 20-24 year olds. These rates are slightly higher than the 2008 case rates for these two age groups; 1,809.7 cases and 1,913.8 cases per 100,000 population, respectively. A breakdown of 2009 chlamydia rates by age group is presented in Figure 2.

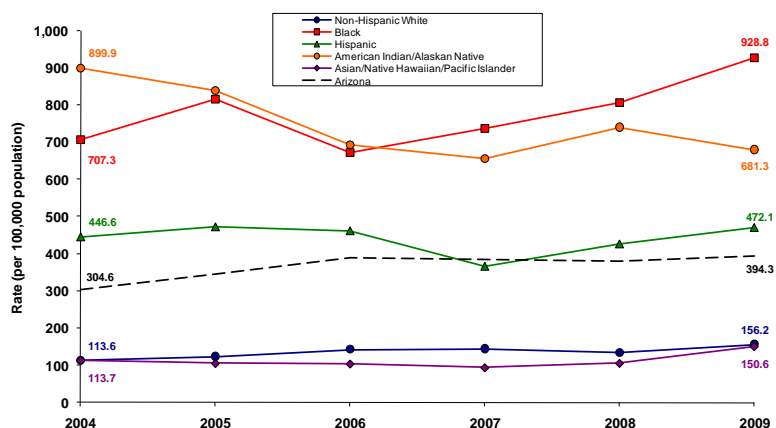


From 2004 to 2009, Arizona chlamydia case rates have tended to be around three times higher in females than in males (Figure 3). In 2009, the female chlamydia case rate was 2.8 times that of males. This was similar to the male to female rate ratio of 2.9 in 2008. Divergent case rates by gender can be attributed to the Infertility Prevention Project (which provides for chlamydia screening in specific clinics statewide) and CDC recommended screening guidelines that call for increased chlamydia screening among females when compared to males, as well as differing healthcare access behavior and chlamydia symptom experience between males and females.



There is a clear health disparity when looking at chlamydia rates in Arizona by race/ethnicity. That is, African Americans and American Indians have maintained disproportionately higher rates of chlamydia from 2004-2009. Unfortunately, the chlamydia rates among African Americans have been increasing steadily since 2006 (Figure 4). Between 2008 and 2009, the chlamydia rates among African Americans in Arizona continued to rise from 808.5 to 928.8 cases per 100,000 population and in 2009, the chlamydia case rate among the African American population living in Arizona was nearly 6 times higher than that of non-Hispanic whites.

Figure 4. Reported Chlamydia Case Rates per 100,000 Population by Race/Ethnicity, Arizona 2004-2009



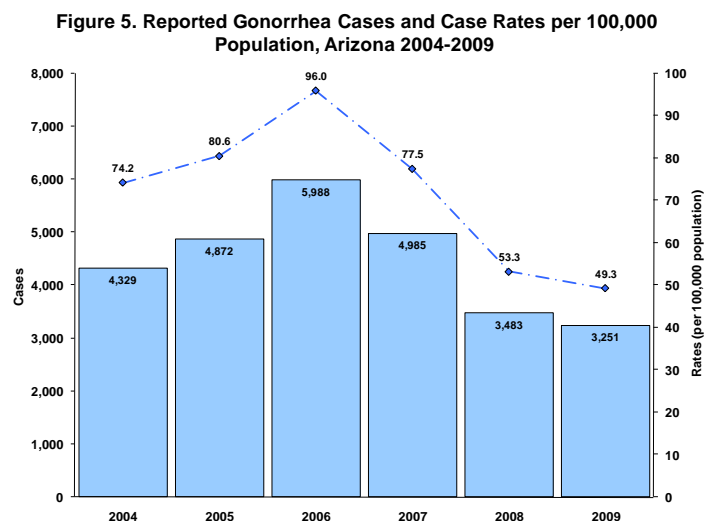
The American Indian population living in Arizona also experiences a disproportionately higher rate of chlamydia. For example, the American Indian 2009 chlamydia rate was 4.4 times higher than the non-Hispanic white rate for the same year. In contrast to the African American population in Arizona, however, the annual chlamydia rate among American Indians in Arizona decreased from 2008 to 2009 by 8%.

The Hispanic population in Arizona has the third highest rates of chlamydia in the state by race/ethnicity. There was a moderate increase in chlamydia case rates among Hispanics in Arizona from 2008 to 2009 from 427.3 to 472.1 cases per 100,000 population (Figure 4).

Of note, the number of unknown race/ethnicity cases had steadily increased between 2004 and 2007 from 2,920 to 8,072, decreasing the reliability of chlamydia analysis by race. The ADHS STD Control Program began, in early 2009, to actively contact providers to complete missing race/ethnicity in historic cases in order to improve the completeness of this data. As a result, the number of reported chlamydia cases that are missing race has decreased each year since implementation. In 2009, there were 5,743 cases with missing race data. This represents a decrease in the percent of reported cases with missing race from 33% in 2007 to 22% in 2009.

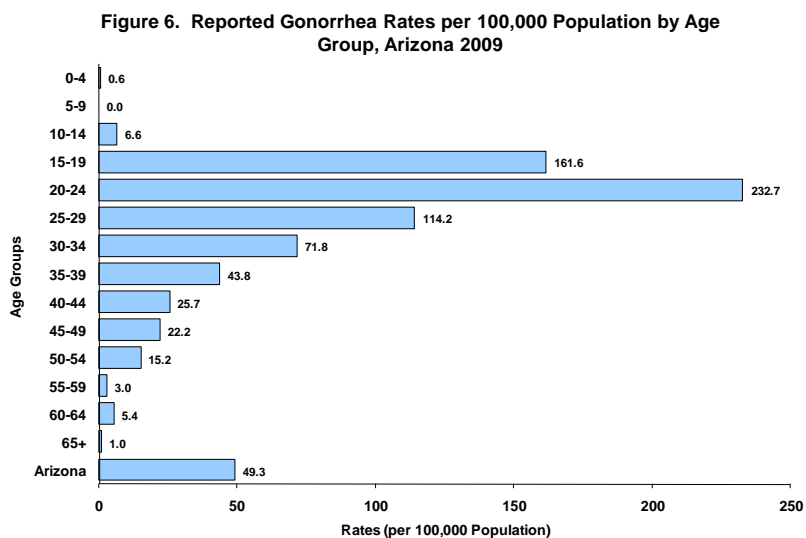
Gonorrhea

In 2009 there were 3,251 gonorrhea cases reported in Arizona, with a corresponding case rate of 49.3 per 100,000 population. This rate represents a continued decline in gonorrhea rates in Arizona since 2006. Specifically, the Arizona gonorrhea rate has decreased 46% since 2006. The largest annual decrease within this four year time period



occurred between 2007 and 2008. Between 2008 and 2009, however, the decrease in annual case numbers and case rates was slower than in previous years. For example, the annual case rate decrease between 2007 and 2008 was 30% as compared to a nearly 7% decrease between 2008 and 2009. This overall decrease in reported gonorrhea cases is noteworthy since the incidence of gonorrhea had exhibited a modest increase from 2004 to 2006 (Figure 5). After careful review and analysis, the STD Control Program staff has determined that the incidence of gonorrhea seems to have truly decreased in Arizona. An important factor contributing to this determination is the likely fact that the epidemiology and etiology of gonorrhea in Arizona has remained distinct from neighboring western states. Specifically, while fluoroquinolone resistant gonorrhea has surged in other western states, the same cannot be said of gonorrhea in Arizona. Consequently, it is likely, although not conclusive, that gonorrhea infection may be decreasing through appropriate and adequate treatment. In addition, increased screening for chlamydia, which inherently tests for gonorrhea as well, has likely detected a large number of asymptomatic cases that were present in the population.

Similar to chlamydia, the general gonorrhea case rate for 2009 may not reflect the population specific burden of



disease in the state. Indeed, the case rate among younger people, especially those between the ages of 15-24, shows a much higher burden of disease. Figure 6 presents gonorrhea case rates by age group for 2009 and demonstrates the impact of gonorrhea among Arizona adolescents and young adults.

In general, gonorrhea morbidity is higher in males than in females. In 2009, the gonorrhea case rate for males stood at 53.8 per 100,000 and 44.8 per 100,000 for females. Figure 7 depicts gonorrhea case rates by gender from 2004 to 2009. The case rate for both males and females in Arizona are declining proportionately, by 7% and 8% respectively, from 2008 to 2009.

As depicted in Figure 8, race-specific rates in Arizona show a general decline for gonorrhea, except for among the African American population. Morbidity among African Americans declined from a high of 405.3 cases per 100,000 population in 2005 to 262.6 cases per 100,000 population in 2008. Unfortunately, unlike most of the

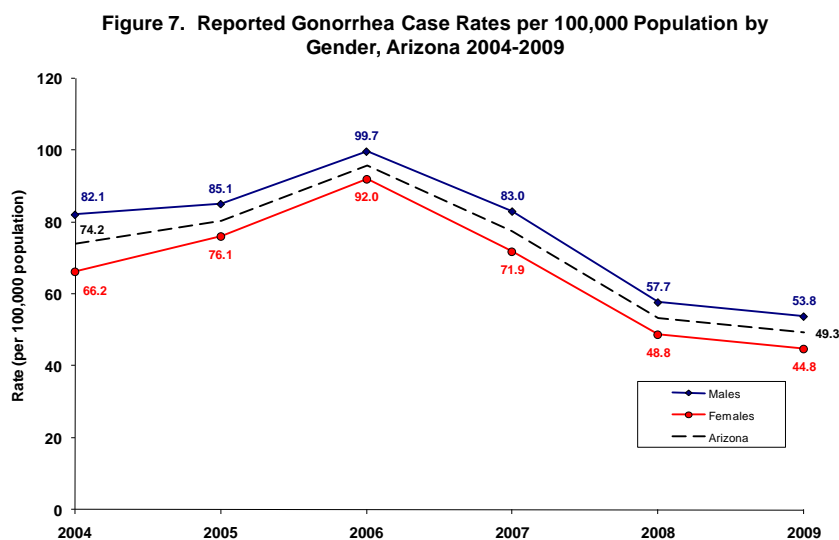
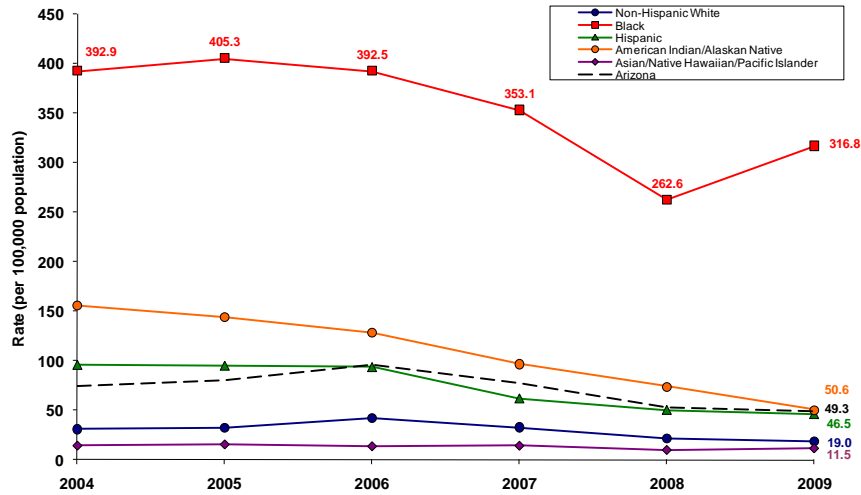


Figure 8. Reported Gonorrhea Case Rates per 100,000 Population by Race/Ethnicity, Arizona 2004-2009

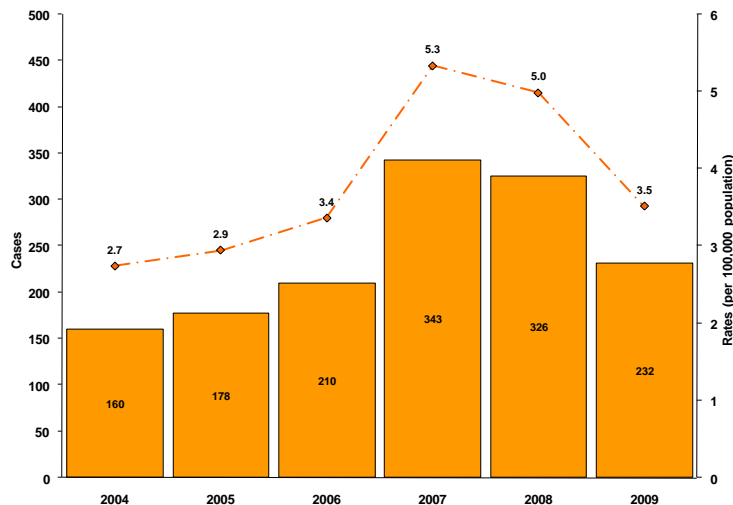


remaining racial and ethnic groups in Arizona, the African American population did not continue to experience a decline in gonorrhea rates in 2009. Instead, the annual gonorrhea rates among African Americans increased by 21%. As can be seen figure 8, gonorrhea rates among African Americans in Arizona are significantly disproportionately higher than those among all other racial and ethnic groups. In fact the 2009 rates for African Americans were **17 times higher** than those of non-Hispanic whites. Gonorrhea rates among American Indians have been steadily decreasing since 2004. This decrease continued between 2008 and 2009 by nearly 32% (Figure 8).

Syphilis

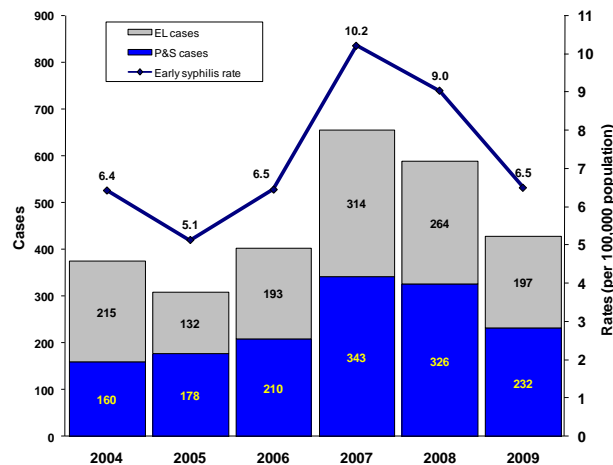
In 2009, the preliminary total number of reported primary and secondary cases syphilis (P&S) decreased by 29% to 232 cases (Figure 9). Over the past six years, the number of reported cases and case rates reached its lowest point in

Figure 9. Reported Primary and Secondary Syphilis Cases and Case Rates per 100,000 Population, Arizona 2004-2009



2004. In 2005, both the number of cases and case rate increased slightly. This trend continued into 2006. Yet, by 2007, both the number of P&S cases as well as the case rate increased dramatically from the previous year representing a 63% increase in cases from 2006 to 2007. This increase was attributed to three significant syphilis outbreaks among American Indians in the state, endemic syphilis among men who have sex with men (MSM) in Maricopa County, and a rise in the number of cases in rural Arizona counties. The decrease in cases, particularly between 2008 and 2009, reflects improved control in all three areas.

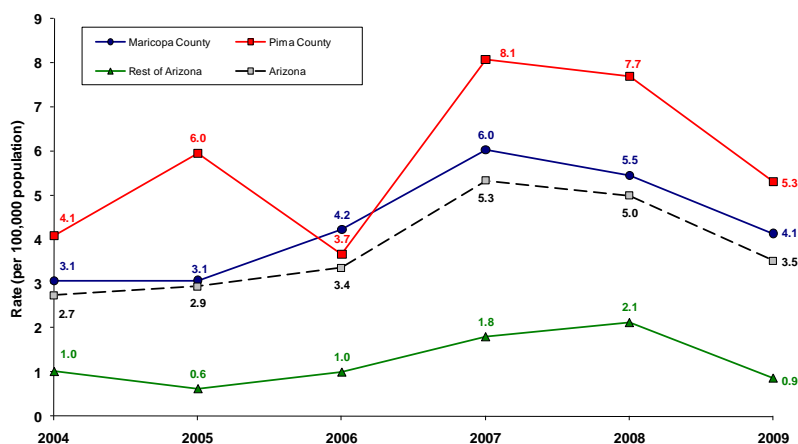
Figure 10. Reported Early Syphilis Cases and Case Rates by Stage per 100,000 Population, Arizona 2004-2009



Arizona's reported early syphilis cases are shown in Figure 10. When early latent cases are included with primary and secondary cases it can be seen that the general pattern seen with primary and secondary syphilis alone (excluding early latent syphilis) in Arizona is maintained. That is, there was a significant increase in reported early syphilis cases between 2006 and 2007, with a gradual decrease in cases since that time.

For P&S syphilis, Maricopa and Pima Counties continue to account for a majority of Arizona's morbidity (Figure

Figure 11. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by County of Residence, Arizona 2004-2009

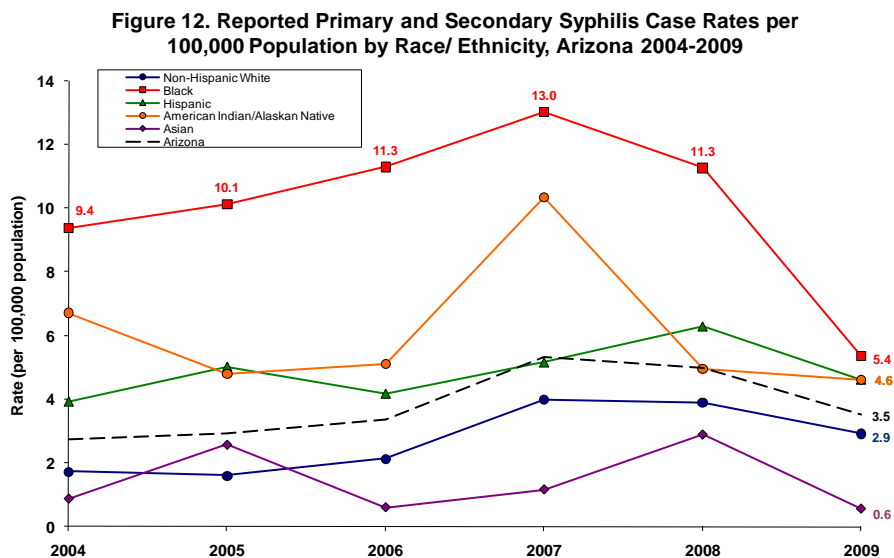


11). The remainder of the state had a relatively low reported P&S syphilis case rate for most of the decade up to 2006. But by 2008, the rate in the remaining 13 counties of Arizona more than tripled to 2.1 per 100,000, which mirrors the increasing trend in Maricopa and Pima counties. In 2009, however, the case rate for these 13 smaller counties combined has returned to previously low levels.

Maricopa County was designated as a High Morbidity Area (HMA) at the outset of the Syphilis Elimination Project in 1999 and continues to be classified as such. In 2009, the county experienced a 25% decrease in the reported annual case rate per 100,000 population of primary and secondary syphilis.

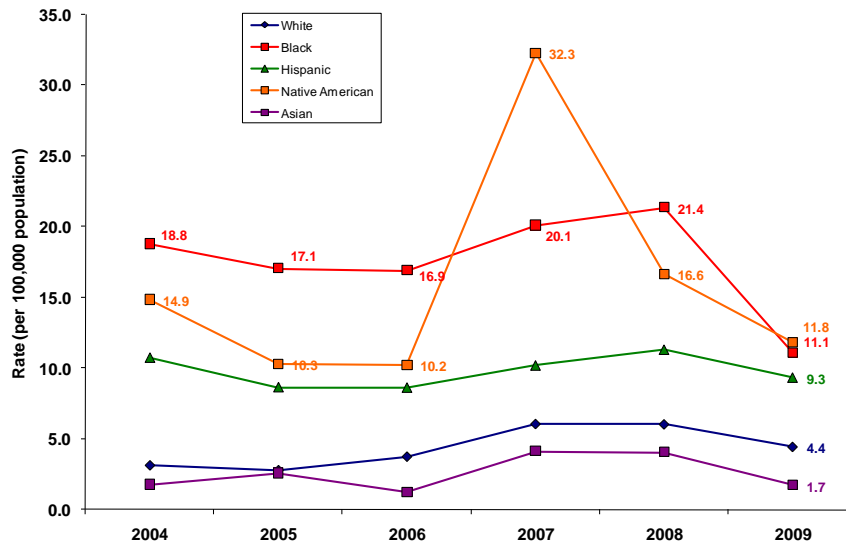
In 2007, Pima County reported a case rate of 7.7 cases of primary and secondary syphilis per 100,000 population, more than double the county's annual case rate in 2006. That rate has since decreased as the 2009 data show a primary and secondary syphilis case rate of 5.3 cases per 100,000 population.

As is similar to chlamydia and gonorrhea, the rate of primary and secondary syphilis among African Americans in Arizona is disproportionately higher than those of any other racial/ethnic group in the state (Figure 12). In contrast



to chlamydia and gonorrhea, however, the state's annual rate of primary and secondary syphilis among African Americans decreased between 2008 and 2009 (the rate was 52% lower in 2009). Nonetheless, this rate remains nearly twice as high as that for non-Hispanic whites.

Figure 13. Reported Early Syphilis Cases by Race/Ethnicity, Arizona 2004-2009



An analysis of the annual case rate trends of early syphilis by race and ethnicity shows a similar decrease in the annual case rate among African Americans in Arizona (Figure 13). American Indians in Arizona have the second highest rate of early syphilis by race/ethnicity. This population experienced a very large increase in both the number of reported primary and secondary cases as well as early syphilis cases between 2006 and 2007, coinciding with several outbreaks among American Indians in Arizona that began during that time period. As control of those outbreaks has improved, the cases and rates of early syphilis have returned to pre-outbreak levels.

Of note, any evaluation of P&S syphilis in Arizona by race is limited by the number of cases with unknown race recorded in the database. The percentage of total P&S cases with unknown race from 2004 – 2009 is as follows; 0.0%, 1.1%, 5.7%, 7.3%, 1.5%, and 0.0% respectively. The Arizona STD Control Program is working with the counties to retrospectively complete the race/ethnicity field in the database for all reported sexually transmitted diseases.

Figure 14. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by Gender, Arizona 2004-2009

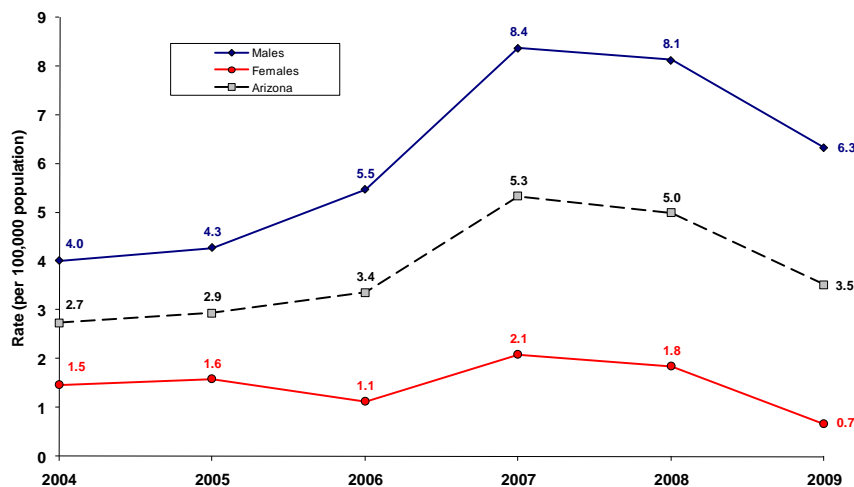
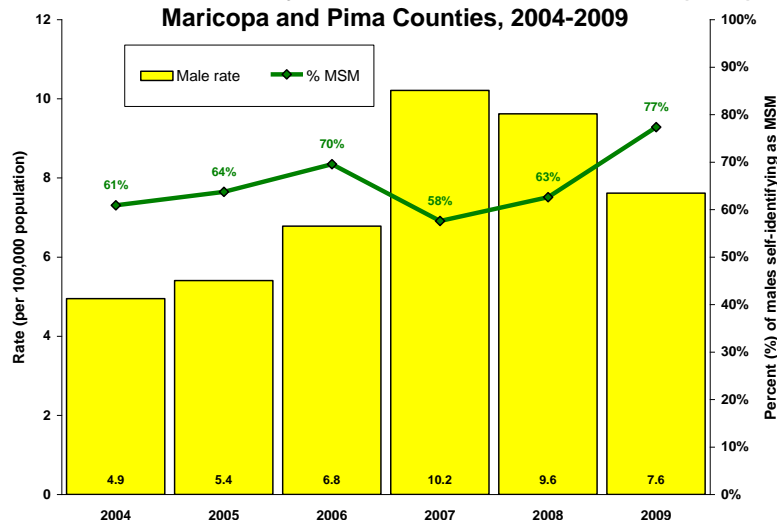


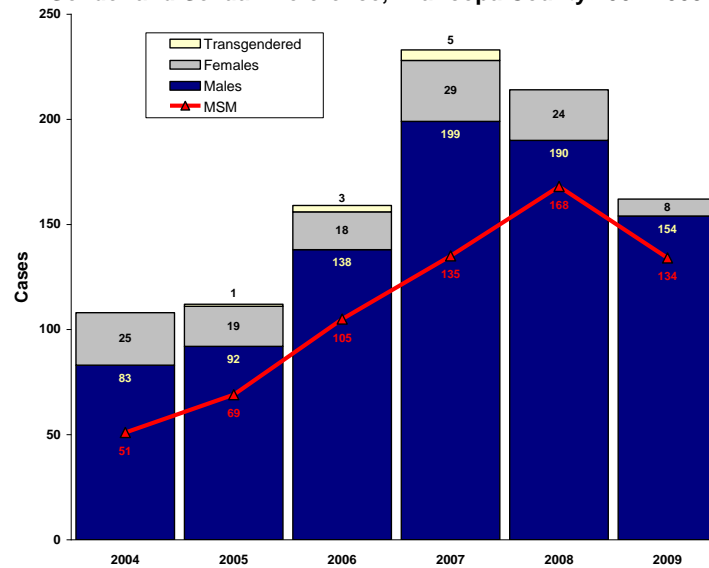
Figure 15. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population among All Males and the Percentage of Male Cases that Self-Identify as Men who Have Sex with Men (MSM), Maricopa and Pima Counties, 2004-2009



As has been the case for most of the decade, more male cases of P&S syphilis were reported than female cases in 2009. In fact, in 2009, males accounted for 90% of P&S cases. This trend is maintained across all ethnic groups, except for Native Americans in 2004 and 2007, where more cases occurred among females. The ratio of male to female cases in Arizona has increased quite dramatically from 2.7 in 2004 to 9.0 in 2009 (Figure 14). The endemic nature of syphilis among MSM likely contributes significantly to this phenomenon. On the other hand, in 2007, the case rate among females almost doubled, from 1.1 in 2006 to 2.1 in 2007. Several syphilis outbreaks among American Indians in 2007 included sizable numbers of infected females and may account for this marked increase in the female rate. The decrease in the reported case rate among Arizona women in 2008 and again in 2009 may reflect the decrease in case rate that occurred among American Indians that year as well.

MSM P&S syphilis rates continue to drive syphilis morbidity, particularly in Maricopa County. Data on MSM syphilis morbidity are only available for Maricopa and Pima counties. These are the two largest counties in Arizona, with approximately 76 percent of the state's population. As such, Figure 15 depicts the P&S case rates among all males residing in Maricopa and Pima counties from 2004 to 2009 and the percentage of those male cases that self-identify as men who have sex with men. In 2009, 77% of the male primary and secondary syphilis cases in Maricopa County self identified as men who have sex with men (Figure 15).

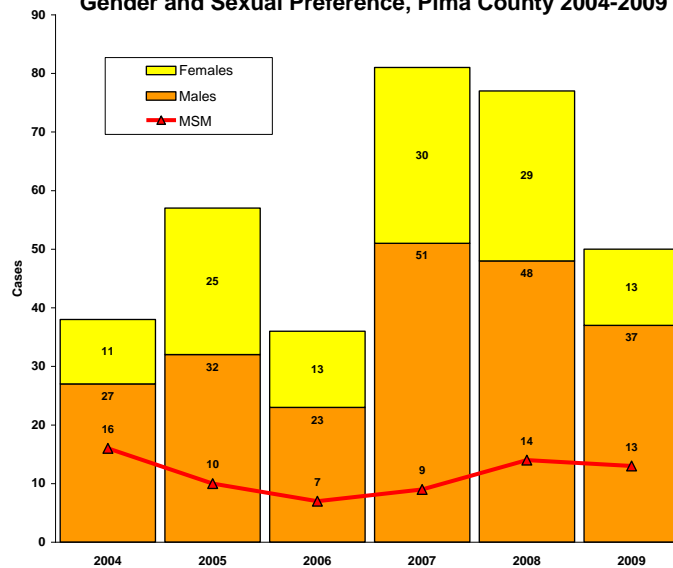
Figure 16. Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Maricopa County 2004-2009



Since 2004, males that self-identify as MSM account for the majority of P&S syphilis cases among males in Maricopa County. Figure 16 highlights that MSM accounted for about 82% of all P&S syphilis cases in Maricopa County in 2009 and 87% of all male cases of P&S syphilis. Notably, P&S syphilis cases among females in Maricopa County remained relatively unchanged from 2004 to 2008 and decreased significantly in 2009.

Conversely, Figure 17 shows that in Pima County, the number of cases among MSM has varied between 18% and 35% of the male cases for the county, except for 2004, where they represented nearly 60% of the male cases for that year. In 2009, 13 cases (35% of all male primary and secondary syphilis cases for the year) in Pima County were

Figure 17. Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Pima County 2004-2009

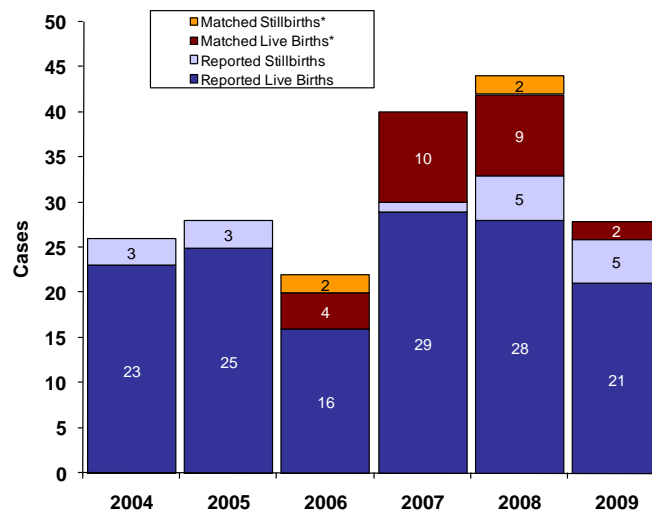


reported among men who have sex with men.

Congenital Syphilis

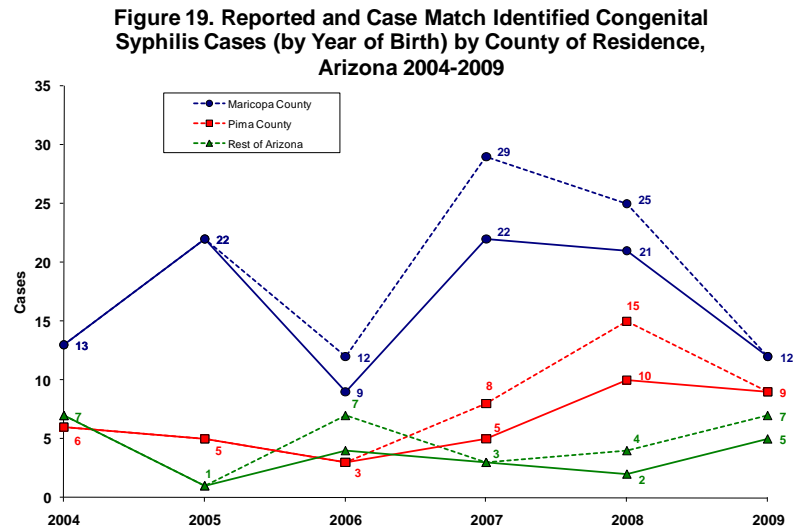
In 2009, Arizona continued to face the challenge of high congenital syphilis cases and case rates (Figure 18). In order to be certain that we have a complete picture of congenital syphilis in the state, the Arizona STD Control Program has undertaken a cross match analysis to identify any unreported cases since 2006. This cross match analysis involves matching the women with syphilis related lab tests in the state database to the fetal live birth and stillbirth records for each year. That analysis identified 6 unreported cases for infants delivered in 2006 (4 live births and 2 stillbirths), 10 infants delivered in 2007 (10 live births), 11 infants delivered in 2008 (9 live births and 2 stillbirths), and 2 infants delivered in 2009 (2 live births, 0 stillbirths) (Figure 18). Those unreported cases are included in the congenital syphilis trends in this report.

Figure 18. Reported and Matched Congenital Syphilis Cases (by Birth Year) in Arizona by Live Birth and Stillbirth, 2004-2009



The total number of congenital syphilis cases in 2009 is decreased from the two previous years. This decrease mirrors the decrease seen statewide in both P&S and early syphilis and may reflect increased local and statewide awareness and prevention activities related to congenital syphilis secondary to several activities including the congenital syphilis case match analysis, an epidemiologic aid analysis and a rapid community assessment completed in conjunction with the Centers for Disease Control and Prevention, and multiple educational programs including a Congenital Syphilis Conference held in conjunction with the Maricopa Public Health Department in November 2009. The Arizona STD Control Program will continue to closely monitor congenital syphilis throughout the state.

Figure 19 illustrates the number of congenital syphilis case by year and by county of residence. The solid lines represent cases that were reported to the state health department and the dashed lines represent cases identified in the previously described cross match analysis for identifying unreported cases.

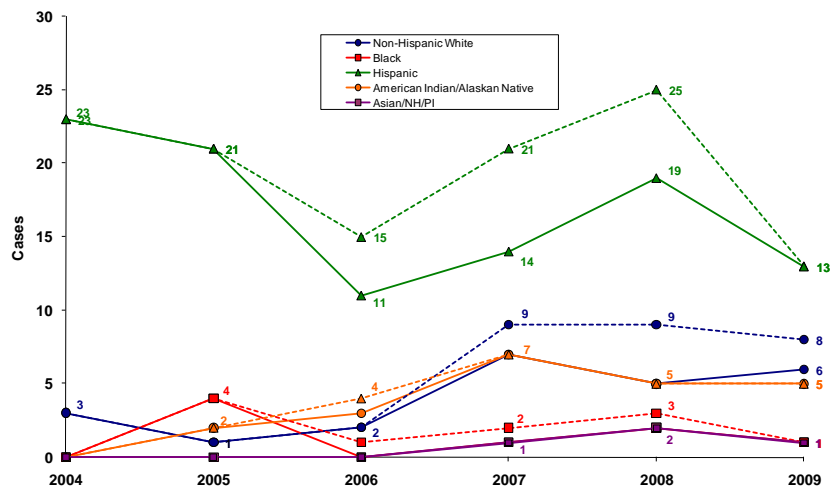


When evaluating congenital syphilis cases by county, Maricopa County accounts for most of the cases in Arizona from 2003-2009. This is consistent with its larger population and greater syphilis burden.

In Pima County, however, the state's second largest county, the congenital syphilis cases increased from 3 cases in 2006 to 15 cases in 2008, a fivefold increase. The increase and maintenance of congenital syphilis cases in Pima County mirrors that county's increase in P&S syphilis during the same period. In 2009, there were 9 reported cases of congenital syphilis in Pima County.

The remainder of Arizona (not including Maricopa and Pima counties) has experienced fluctuating numbers of cases. In 2005, the number of cases outside of Maricopa and Pima counties dropped significantly from 2004 to only one case. In 2006, however, the number of congenital syphilis cases identified in the remainder of Arizona increased to seven, dropped in 2007 and 2008, and then was back to 7 in 2009. The return to a higher number of cases among these counties in 2009 indicates a need for increased congenital syphilis awareness activities within these 13 smaller counties.

Figure 20. Reported and Case Match Identified Congenital Syphilis (by Birth Year) Cases by Race/Ethnicity, Arizona 2004-2009



In 2009, more Hispanic infants were born with congenital syphilis than any other race/ethnicity. Figure 20 illustrates this important racial health disparity in Arizona. Again, with this figure, cases that were reported and represented with solid lines while those identified in the cross match analysis are represented using broken lines. Indeed, since 2002, the number of cases among Hispanics has been considerably greater than in other racial/ethnic groups. For this decade, the greatest number of cases (25) among Hispanics occurred in 2008. The high number of cases of congenital syphilis among American Indian infants during 2007-2008 reflects the multiple outbreaks of syphilis among these populations and is also a significant public health disparity for the state given that American Indian women in 2009 delivered 17% of the infants born with congenital syphilis whereas they represent 5% of the total female population of Arizona.